

# PATENT COOPERATION TREATY

To:

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# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference <b>OPP043596KR</b>		Date of mailing (day/month/year) <b>17 November 2005 (17.11.2005)</b>
International application No. <b>PCT/KR 2005/000313</b>		International filing date (day/month/year) <b>2 February 2005 (02.02.2005)</b>
International Patent Classification (IPC) or both national classification and IPC <b>H04Q 7/38, H04L 12/28</b>		Priority Date (day/month/year) <b>2 February 2004 (02.02.2004)</b>
Applicant <b>ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE</b>		

**1. This opinion contains indications relating to the following items:**

- ☒ Cont. No. I Basis of the opinion
- ☐ Cont. No. II Priority
- ☐ Cont. No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Cont. No. IV Lack of unity of invention
- ☒ Cont. No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Cont. No. VI Certain documents cited
- ☒ Cont. No. VII Certain defects in the international application
- ☒ Cont. No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/KR 2005/000313

Continuation No. I

AP20 Rec'd PCT/PTO 02 AUG 2006

**Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

**Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims 1-16	YES
	Claims ----	NO
Inventive step (IS)	Claims 1-16	YES
	Claims ----	NO
Industrial applicability (IA)	Claims 1-16	YES
	Claims ----	NO

2. Citations and explanations:

The following documents have been cited in the Search Report:

D1: YOON, C. 'CQI Report for Mobility Support'  
D2: FUKUI, N. 'Study of Channel Quality Feedback in UMTS HSDPA'  
D3: WO2002/093961 A1

Document D1, which is considered to represent the closest prior art, discloses a method for requesting and reporting channel quality in a mobile communication system comprising a base station and subscriber stations, wherein the base station transmits an uplink allocation message (UL-MAP) to a subscriber station and broadcasts a report request message (REP-REQ) to a plurality of subscriber stations, wherein said uplink allocation message defines the dedicated channel which is used to report the channel quality information (CQI report channel) and which is shared with the ARQ\_ACK channel. The report request message includes the basic connection identifiers (CIDs) of the plurality of subscriber stations which are requested to report their channel measurements. A subscriber station receiving both the uplink allocation message and the report request message generates the channel quality information (CQI) by measuring the radio channel and transmits the generated CQI report on the appropriate CQI report channel which is shared with the ARQ\_ACK channel.

The concept revealed in document D1 aims at the same purpose as the subject of the present application namely to rapidly and efficiently provide reliable CQI which is necessary for adaptively determining the optimal modulation and coding scheme.

In document D2 a CQI feedback scheme is disclosed, wherein the subscriber station decodes received data on the HS-PDSCH on the downlink and validates it. According to the result of validation, the UE transmits ACK or NACK at the prescribed timing. If the subscriber station has detected an error by the said validation step, the subscriber transmits an additional CQI together with the NACK. According to the teaching of document D2, it is known to share the transmission of ACK/NACK information together with CQI in the same sub-frame.

Finally, document D3 provides a solution for requesting channel quality measurements for adaptive modulation and coding techniques, having a low latency and low signalling overhead. The objectives are achieved by selectively requesting channel quality measurements from the subscriber station as demanded by the base station.

Although each of the cited documents D1 to D3 addresses several features of the present application, the cited documents neither disclose nor suggest the special technical feature of the present application of including a channel quality information indicator in the resource allocation message, which is used for requesting a channel quality information report, which renders a separate report request message unnecessary.

Therefore, the subject matter of independent method claims 1, 6, 9, 12 and 15 and corresponding apparatus claims 12 and 15 is new and inventive.

The additional features introduced in dependent claims 2-5, 7-8, 10-11, 13, 14 and 16 which are related to preferred embodiments are new and inventive by virtue of dependency.

Industrial applicability is given.

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**Continuation No. VII:**

**Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

In order to meet the requirements of Rule 6.3 (b) PCT, whenever appropriate, each independent claim should be clearly delimited in relation to the closest prior art (for example D1) using the two-part form.

In order to meet the requirements of Rule 5.1 (a)(ii) PCT, documents D1 to D3, which disclose prior art that is relevant to the present invention, should be cited in the description and the said relevant prior art should be briefly outlined.

Reference signs in parentheses should be inserted in the claims to increase their intelligibility. This applies to both the preamble and the characterizing portion (see Rule 6.2 (b) PCT).

**Continuation No. VIII:**

**Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The applicant is kindly informed, that, occasionally, throughout the description and the claims some words appearing at the end of a line are truncated and wrapped over to the beginning of the following line, see for instance the last word in the first line of paragraph [13] of the description and the second line of claim 2.

At the beginning of the fourth line in paragraph [70] of the description the "uplink resource allocator 113" should be corrected to properly read "downlink resource allocator 113".

In paragraphs [83] and [101] of the description references are made to "Fig. 10" and "Fig. 12". Obviously, said references should be corrected to properly read "Fig. 11" and "Fig. 13", respectively.

There is an unnecessary proliferation of independent claims identified. The various definitions of the invention given in independent claims 1, 6, 9, 12 and 15 are such that the claims as a whole are not clear and concise, contrary to Article 6 PCT.

Therefore, the claims should be recast to include only the minimum necessary number of independent claims in any one category (Rule 6.4(a)-(c) PCT).

The International Preliminary Examination Authority is of the opinion that the essential steps of the method performed at the base station closely interact with the essential steps of the method performed at the subscriber station. Without performing corresponding and coincident steps at the subscriber station the related steps performed at the base station would undoubtedly not be feasible, and vice versa.

Therefore, it is considered appropriate to use only one independent claim of the method category combining the individual steps performed at the base station apparatus and the subscriber station in a timely correct manner with a reasonable degree of clarity, and to use only two independent claims of the apparatus category, i.e. one for the base station apparatus and one for the subscriber station.

When amending the application the applicant should be aware to avoid giving raise to further objections by the inadvertent addition of subject matter and that the claims in the various categories are linked by a single general inventive concept.